What is claimed is:

- 1 1. A configuration management method in a computer 2 system comprising a first storage device, a second storage 3 device which becomes a migration destination of a logical volume of said first storage device, and a server which can 4 transmit an access request to said first and second storage 5 devices through a network, for setting up a configuration б 7 in said second storage device, comprising: a first step for obtaining a configuration including 9 a logical volume definition, which is set up in said first 10 storage device; 11 a second step for preparing a logical volume definition 12 of a logical volume of said second storage device which becomes 13 a migration destination of a logical volume of said first 14 storage device, on the basis of a logical volume definition 15 included in the configuration obtained in said first step; 16 a third step for preparing a cache allocation definition 17 of a logical volume of said second storage device which becomes. 18 a migration destination of a logical volume of said first 19 storage device, in case that a cache allocation definition 20 is included in the configuration obtained in said first step, 21 on the basis of the cache allocation definition that said 22 first storage device has and capacity of a cache that said 23 second storage device has;
 - a fourth step for preparing a port bandwidth allocation

- 25 definition of a port that said second storage device has,
- 26 used for an access to a logical volume of said second storage
- 27 device which becomes a migration destination of a logical
- 28 volume of said first storage device, in case that a port
- 29 bandwidth allocation definition is included in the
- 30 configuration obtained in said first step, on the basis of
- 31 the port bandwidth allocation definition that said first
- 32 storage device has and bandwidth capacity of a port that
- 33 said second storage device has; and
- a fifth step for setting up the logical volume
- 35 definition prepared in said second step, the cache allocation
- 36 definition in case that the cache allocation definition is
- 37 prepared in said third step, and the port bandwidth allocation
- 38 definition in case that the port bandwidth allocation
- 39 definition is prepared in said fourth step, in said second
- 40 storage device, as a configuration.
 - The configuration management method according to
 - 2 Claim 1, wherein
 - 3 said third step for preparing a cache allocation
 - 4 definition of a logical volume of said second storage device,
 - 5 so as for a cache allocation amount of a logical volume of
 - 6 said second storage device which is a migration destination
 - 7 of a logical volume of said first storage device to become
 - 8 the same capacity as a cache allocation amount of a logical
- 9 volume of said first storage device, in case that a cache

- 10 allocation amount of a logical volume of said first storage
- 11 device, which is specified by a cache allocation definition
- 12 included in the configuration obtained in said first step.
- 13 is smaller than remaining capacity to which a logical volume
- 14 is not allocated among total capacity of a cache that said
- 15 second storage device has.
 - 3. The configuration management method according to
 - 2 Claim 1, wherein
 - said fourth step for preparing a port bandwidth
 - 4 allocation definition of a port that said second storage
 - 5 device has, which is used for an access to a logical volume
 - 6 of said second storage device which becomes a migration
 - 7 destination of a logical volume of said first storage device,
 - 8 so as for a port bandwidth allocation amount for an access
- 9 to a logical volume of said second storage device a migration
- 10 destination of a logical volume of said first storage device
- 11 to become the same capacity as a port bandwidth allocation
- 12 amount for an access to a logical volume of said first storage
- 13 device,
- in case that a port bandwidth allocation amount for
- 15 an access to a logical volume of said first storage device,
- 16 which is specified by a port bandwidth allocation definition
- included in the configuration obtained in said first step.
- 18 is smaller than bandwidth remaining capacity not allocated
- 19 to an access to a logical volume among total bandwidth capacity

- 20 of a port that said second storage device has.
 - 1 4. The configuration management method according to
 - 2 Claim 1, further comprising:
 - a sixth step for changing an access request object of
 - 4 said server from a logical volume of said first storage device
 - 5 to a logical volume of said second storage device which is
 - 6 a migration destination of the logical volume.
 - 5. A configuration management method in a computer
 - 2 system comprising a first storage device, a second storage
 - 3 device which becomes a migration destination of a logical
- 4 volume of said first storage device, and a server which can
- 5 transmit an access request to said first and second storage
- 6 devices through a network, for setting up a configuration
- 7 in said second storage device, comprising:
- 8 a first step for obtaining a configuration including
- 9 at least a logical volume definition, which is set up in
- 10 said first storage device;
- a second step for preparing a logical volume definition
- 12 of a logical volume of said second storage device which becomes
- 13 a migration destination of a logical volume of said first
- 14 storage device, on the basis of a logical volume definition
- 15 included in the configuration obtained in said first step;
- a third step for judging whether or not a cache
- 17 allocation amount of a logical volume of said first storage

18 device is smaller than remaining capacity to which a logical 19 volume is not allocated among total capacity of a cache that 20 said second storage device has, in case that a cache allocation 21 definition is included in the configuration obtained in said 22 first step, and prepares a cache allocation definition of 23 a logical volume of said second storage device which becomes 24 a migration destination of a logical volume of said first 25 storage device, in case that a cache allocation amount of 26 a logical volume of said first storage device is smaller than remaining capacity to which a logical volume is not 27 allocated among total capacity of the cache that said second 28 29 storage device has, so as for a cache allocation amount of 30 a logical volume of said second storage device which is a migration destination of a logical volume of said first 31 32 storage device to becomes the same capacity as a cache 33 allocation amount of a logical volume of said first storage 34 device:

35 a fourth step for judging whether or not a port bandwidth 36 allocation amount for an access to a logical volume of said first storage device, which is specified by a port bandwidth 37 38 allocation definition, in case that the port bandwidth 39 allocation definition is included in the configuration which 40 was obtained in said first step, is smaller than bandwidth 41 remaining capacity which is not allocated to an access to 42 a logical volume among total capacity of a port that said second storage device has, and prepares a port bandwidth 43

44 allocation definition of a port that said second storage device has, which is used for an access to a logical volume 45 46 of said second storage device which becomes a migration 47 destination of a logical volume of said first storage device, 48 in case that a port bandwidth allocation definition for an 49 access to a logical volume of said first storage device is 50 smaller than bandwidth remaining capacity which is not 51 allocated to an access to a logical volume among total capacity 52 of a port that said second storage device has, so as for 53 a port bandwidth allocation amount for an access to a logical 54 volume of said second storage device which is a migration 55 destination of a logical volume of said first storage device 56 to become the same capacity as a port bandwidth allocation 57 amount for an access to a logical volume of said first storage 58 device;

59 a fifth step for setting up the logical volume 60 definition which was prepared in said second step, the cache 61 allocation definition in case that the cache allocation 62 definition was prepared in said third step, and the port 63 bandwidth allocation definition in case that the port 64 bandwidth allocation definition was prepared in said fourth 65 step, in said second storage device, as a configuration; 66 a sixth step for changing an access request object of 67 said server from a logical volume of said first storage device to a logical volume of said second storage device which is 68 a migration destination of the logical volume; and 69

- 70 a seventh step for changing an access control list of 71 said first storage device, so as to reject an access request 72 from said server.
 - 6. A configuration management apparatus in a computer system comprising a first storage device, a second storage 2 3
 - device which becomes a migration destination of a logical
 - volume of said first storage device, and a server which can
 - 5 transmit an access request to said first and second storage
 - б devices through a network, for setting up a configuration
 - in said second storage device, comprising: 7
 - 8 a calculation device, and a storage subsystem, wherein
 - 9 said calculation device carries out
- 10 a process which obtains a configuration including a
- 11 logical volume definition and a cache allocation definition
- 12 and/or a port bandwidth allocation definition, from said
- first storage device and stores them in said storage 13
- 14 subsystem,

- 15 a process which prepares a logical volume definition
- 16 of a logical volume of said second storage device which becomes
- a migration destination of a logical volume of said first 17
- 18 storage device, on the basis of a logical volume definition
- included in the configuration stored in said storage 19
- 20 subsystem,
- 21 a process which prepares a cache allocation definition
- 22 of a logical volume of said second storage device which becomes

- 23 a migration destination of a logical volume of said first
- 24 storage device, in case that a cache allocation definition
- 25 is included in the configuration stored in said storage
- 26 subsystem, on the basis of the cache allocation definition
- 27 that said first storage device has and capacity of a cache
- 28 that said second storage device has,
- a process which prepares a port bandwidth allocation
- 30 definition of a port that said second storage device has,
- 31 which is used for an access to a logical volume of said second
- 32 storage device which becomes a migration destination of a
- 33 logical volume of said first storage device, in case that
- 34 a port bandwidth allocation definition is included in the
- 35 configuration stored in said storage subsystem, on the basis
- 36 of the port bandwidth allocation definition that said first
- 37 storage device has and bandwidth capacity of a port that
- 38 said second storage device has, and
- a process which sets up the prepared logical volume
- 40 definition, the cache allocation definition in case that
- 41 the cache allocation definition is prepared, and the port
- 42 bandwidth allocation definition in case that the port
- 43 bandwidth allocation definition is prepared, as a
- 44 configuration of said second storage device.
 - 7. The configuration management apparatus according
 - 2 to Claim 6, wherein
 - 3 said configuration management apparatus is built up

- 4 on said second storage device.
- 1 8. The configuration management apparatus according
- 2 to Claim 6 is connected to each device which configures said
- 3 computer system through another network separated from said
- 4 network.
- 9. A computer system comprising:
- 2 a first storage device;
- 3 a second storage device which becomes a migration
- 4 destination of a logical volume of said first storage device;
- 5 a server which can transmit an access request to said
- 6 first and second storage devices through a network; and
- 7 a configuration management apparatus which sets up a
- 8 configuration in said second storage device, wherein
- 9 said configuration management apparatus has a
- 10 calculation device, and a storage subsystem, wherein
- 11 said calculation device carries out
- a process which obtains a configuration including a
- 13 logical volume definition, from said first storage device
- 14 and stores it in said storage subsystem,
- a process which prepares a logical volume definition
- 16 of a logical volume of said second storage device which becomes
- 17 a migration destination of a logical volume of said first
- 18 storage device, on the basis of a logical volume definition
- 19 included in the configuration stored in said storage

- 20 subsystem,
- 21 a process which prepares a cache allocation definition
- 22 of a logical volume of said second storage device which becomes
- 23 a migration destination of a logical volume of said first
- 24 storage device, in case that a cache allocation definition
- 25 is included in the configuration which was stored in said
- 26 storage subsystem, on the basis of the cache allocation
- 27 definition that said first storage device has and capacity
- 28 of a cache that said second storage device has,
- a process which prepares a port bandwidth allocation
- 30 definition of a port that said second storage device has,
- 31 which is used for an access to a logical volume of said second
- 32 storage device which becomes a migration destination of a
- 33 logical volume of said first storage device, in case that
- 34 a port bandwidth allocation definition is included in the
- 35 configuration stored in said storage subsystem, on the basis
- of the port bandwidth allocation definition that said first
- 37 storage device has and bandwidth capacity of a port that
- 38 said second storage device has, and
- a process which sets up the prepared logical volume
- 40 definition, the cache allocation definition in case that
- 41 the cache allocation definition is prepared, and the port
- 42 bandwidth allocation definition in case that the port
- 43 bandwidth allocation definition is prepared, as a
- 44 configuration of said second storage device.

- 1 10. A computer-readable recording medium in a computer
 2 system comprising a first storage device, a second storage
 3 device which becomes a migration destination of a logical
 4 volume of said first storage device, and a server which can
 5 transmit an access request to said first and second storage
 6 devices through a network, stores a program used to set up
 7 a configuration of said second storage device, storing a
- a first step for obtaining a configuration including
 a logical volume definition, which is set up in said first
 storage device,

program which has a computer executed:

- a second step for preparing a logical volume definition of a logical volume of said second storage device which becomes a migration destination of a logical volume of said first storage device, on the basis of a logical volume definition which is included in the configuration which was obtained in said first step,
- 18 a third step for preparing a cache allocation definition 19 of a logical volume of said second storage device which becomes 20 a migration destination of a logical volume of said first 21 storage device, in case that a cache allocation definition 22 is included in the configuration obtained in said first step, 23 on the basis of the cache allocation definition that said 24 first storage device has and capacity of a cache that said 25 second storage device has,
- 26 a fourth step for preparing a port bandwidth allocation

- 27 definition of a port that said second storage device has,
- 28 which is used for an access to a logical volume of said second
- 29 storage device which becomes a migration destination of a
- 30 logical volume of said first storage device, in case that
- 31 a port bandwidth allocation definition is included in the
- 32 configuration which was obtained in said first step, on the
- 33. basis of the port bandwidth allocation definition that said
- 34 first storage device has and bandwidth capacity of a port
- 35 that said second storage has, and
- a fifth step for setting up the logical volume
- definition which was prepared in said second step, the cache
- 38 allocation definition in case that the cache allocation
- 39 definition is prepared in said third step, and the port
- 40 bandwidth allocation definition in case that the port
- 41 bandwidth allocation definition is prepared in said fourth
- 42 step, in said second storage device.
 - 1 11. A configuration management method in a computer
 - 2 system comprising a first storage device, a virtualization
 - 3 device which manages a logical volume of said first storage
 - 4 device by a virtual volume which is a virtual logical volume,
 - 5 and a server which can transmit an access request to said
 - 6 first storage device and said virtualization device through
 - 7 a network, for setting up a configuration in said
 - 8 virtualization device, comprising:
 - 9 a first step for obtaining a configuration including

- 10 a logical volume definition, which is set up in said first
- 11 storage device;
- a second step for preparing a logical volume definition
- 13 of a virtual volume of said virtualization device which
- 14 virtualizes a logical volume of said first storage device,
- on the basis of a logical volume definition which is included
- 16 in the configuration obtained in said first step;
- 17 a third step for preparing a cache allocation definition
- 18 of a virtual volume of said virtualization device which
- 19 virtualizes a logical volume of said first storage device,
- 20 in case that a cache allocation definition is included in
- 21 the configuration obtained in said first step, on the basis
- 22 of the cache allocation definition that said first storage
- 23 device has and capacity of a cache that said virtualization
- 24 device has;
- a fourth step for preparing a port bandwidth allocation
- 26 definition of a port that said virtualization device has,
- 27 which is used for an access to a virtual volume of said
- 28 virtualization device which virtualizes a logical volume
- 29 of said first storage device, in case that a port bandwidth .
- 30 allocation definition is included in the configuration which
- 31 was obtained in said first step, on the basis of the port
- 32 bandwidth allocation definition that said first storage
- 33 device has and bandwidth capacity of a port that said
- 34 virtualization device has; and
- 35 a fifth step for setting up the logical volume

- 36 definition prepared in said second step, the cache allocation
- 37 definition in case that the cache allocation definition is
- 38 prepared in said third step, and the port bandwidth allocation
- 39 definition in case that the port bandwidth allocation
- 40 definition is prepared in said fourth step, in said
- 41 virtualization device, as a configuration.
 - 1 12. The configuration management method according to
 - 2 Claim 11, wherein
 - 3 said third step for preparing a cache allocation
 - 4 definition of a virtual volume of said virtualization device,
 - 5 so as for a cache allocation amount of a virtual volume of
 - 6 said virtualization device which virtualizes a logical
 - 7 volume of said first storage device to become the same capacity
 - 8 as a cache allocation amount of a logical volume of said
 - 9 first storage device, in case that a cache allocation amount
- 10 of a logical volume of said first storage device, which is
- 11 specified by a cache allocation definition included in the
- 12 configuration obtained in said first step is smaller than
- 13 remaining capacity to which a logical volume is not allocated
- 14 among total capacity of a cache that said virtualization
- 15 device has.
 - 1 13. The configuration management method according to
 - 2 Claim 11, wherein
 - 3 said port bandwidth allocation definition of a port

- 4 that said virtualization device has, which is used for an
- 5 access to a virtual volume of said virtualization device
- 6 which virtualizes a logical volume of said first storage
- 7 device, so as for a port bandwidth allocation amount for
- 8 an access to a logical volume of said virtualization device
- 9 which virtualizes a logical volume of said first storage
- 10 device to becomes the same capacity as a port bandwidth
- 11 allocation amount for an access to a logical volume of said
- 12 first storage device,
- 13 in case that a port bandwidth allocation amount for an access
- 14 to a logical volume of said first storage device, which is
- 15 specified by a port bandwidth allocation definition included
- 16 in the configuration obtained in said first step, is smaller
- 17 than bandwidth remaining capacity which is not allocated
- 18 to an access to a logical volume among total bandwidth capacity
- 19 of a port that said virtualization device has.
 - 1 14. The configuration management method according to
 - 2 Claim 11, further comprising:
 - a sixth step for changing an access request object of
 - 4 said server from a logical volume of said first storage device
 - 5 to a virtual volume of said virtualization device which
 - 6 virtualizes the logical volume.
 - 1 15. The configuration management method according to
- 2 Claim 14, further comprising:

- 3 a seventh step for changing an access control list of
- 4 said first storage device, so as to reject an access request
- 5 from said server.
- 1 16. A configuration management apparatus in a computer
- 2 system comprising a first storage device, a virtualization
- 3 device which manages a logical volume of said first storage
- 4 device by a virtual volume which is a virtual logical volume,
- 5 and a server which can transmit an access request to said
- 6 first storage device and said virtualization device through
- 7 a network, for setting sets up a configuration in said
- 8 virtualization device, comprising:
- 9 a calculation device, and a storage subsystem, wherein
- 10 said calculation device carries out
- a process which obtains a configuration including a
- 12 logical volume definition, from said first storage device
- 13 and stores it in said storage subsystem,
- a process which prepares a logical volume definition
- 15 of a virtual volume of said virtualization device which
- 16 virtualizes a logical volume of said first storage device,
- on the basis of a logical volume definition included in the
- 18 configuration stored in said storage subsystem,
- a process which prepares a cache allocation definition
- 20 of a virtual volume of said virtualization device which
- 21 virtualizes a logical volume of said first storage device,
- 22 in case that a cache allocation definition is included in

- 23 the configuration which was stored in said storage subsystem,
- 24 on the basis of the cache allocation definition that said
- 25 first storage device has and capacity of a cache that said
- 26 virtualization device has,
- a process which prepares a port bandwidth allocation
- 28 definition of a port that said virtualization device has,
- 29 which is used for an access to a virtual volume of said
- 30 virtualization device which virtualizes a logical volume
- 31 of said first storage device, in case that a port bandwidth
- 32 allocation definition is included in the configuration
- 33 stored in said storage subsystem, on the basis of the port
- 34 bandwidth allocation definition that said first storage
- 35 device has and bandwidth capacity of a port that said
- 36 virtualization device has, and
- a process which sets up the prepared logical volume
- 38 definition, the cache allocation definition in case that
- 39 the cache allocation definition is prepared, and the port
- 40 bandwidth allocation definition in case that the port
- 41 bandwidth allocation definition is prepared, as a
- 42 configuration of said virtualization device.
 - 1 17. The configuration management apparatus according
 - 2 to Claim 16, wherein
 - 3 said configuration management apparatus is built up
 - 4 on said virtualization device.

- 1 18. The configuration management apparatus according
- 2 to Claim 16 is connected to each device which configures
- 3 said computer system through another network separated from
- 4 said network.
- 1 19. A computer system comprising:
- 2 a first storage device;
- 3 a virtualization device which unifies the management
- 4 of a logical volume of said first storage device by a virtual
- 5 volume which is a virtual logical volume;
- a server which can transmit an access request to said
- 7 first storage device and said virtualization device through
- 8 a network; and
- 9 a configuration management apparatus which sets up a
- 10 configuration in said virtualization device, wherein
- said configuration management apparatus has
- 12 a calculation device, and a storage subsystem, wherein
- said calculation device carries out
- a process which obtains a configuration including a
- 15 logical volume definition, from said first storage device
- 16 and stores it in said storage subsystem,
- a process which prepares a logical volume definition
- 18 of a virtual volume of said virtualization device which
- 19 virtualizes a logical volume of said first storage device,
- 20 on the basis of a logical volume definition which is included
- 21 in the configuration which was stored in said storage

- 22 subsystem,
- 23 a process which prepares a cache allocation definition
- 24 of a virtual volume of said virtualization device which
- 25 virtualizes a logical volume of said first storage device,
- 26 in case that a cache allocation definition is included in
- 27 the configuration stored in said storage subsystem, on the
- 28 basis of the cache allocation definition that said first
- 29 storage device has and capacity of a cache that said
- 30 virtualization device has,
- a process which prepares a port bandwidth allocation
- 32 definition of a port that said virtualization device has,
- 33 which is used for an access to a virtual volume of said
- 34 virtualization device which virtualizes a logical volume
- of said first storage device, in case that a port bandwidth
- 36 allocation definition is included in the configuration which
- 37 was stored in said storage subsystem, on the basis of the
- 38 port bandwidth allocation definition that said first storage
- 39 device has and bandwidth capacity of a port that said
- 40 virtualization device has, and
- a process which sets up the prepared logical volume
- 42 definition, the cache allocation definition in case that
- 43 the cache allocation definition is prepared, and the port
- 44 bandwidth allocation definition in case that the port
- 45 bandwidth allocation definition is prepared, as a
- 46 configuration of said virtualization device.

- 20. A computer-readable recording medium in a computer system comprising a first storage device, a virtualization
- 4 device by a virtual volume which is a virtual logical volume,

device which manages a logical volume of said first storage

- 5 and a server which can transmit an access request to said
- 6 first storage device and said virtualization device through
- 7 a network, stores a program which is used to set up a
- 8 configuration in said virtualization device, storing a
- 9 program which has a computer executed:
- a first step for obtaining a configuration including
- 11 a logical volume definition, which is set up in said first
- 12 storage device,

- a second step for preparing a logical volume definition
- 14 of a virtual volume of said virtualization device which
- 15 virtualizes a logical volume of said first storage device,
- on the basis of a logical volume definition which is included
- 17 in the configuration obtained in said first step,
- a third step for preparing a cache allocation definition
- 19 of a virtual volume of said virtualization device which
- 20 virtualizes a logical volume of said first storage device,
- 21 in case that a cache allocation definition is included in
- 22 the configuration obtained in said first step, on the basis
- 23 of the cache allocation definition that said first storage
- 24 device has and capacity of a cache that said virtualization
- 25 device has,
- a fourth step for preparing a port bandwidth allocation

definition of a port that said virtualization device has, which is used for an access to a virtual volume of said

29 virtualization device which virtualizes a logical volume

of said first storage device, in case that a port bandwidth

31 allocation definition is included in the configuration which

32 was obtained in said first step, on the basis of the port

33 bandwidth allocation definition that said first storage

34 device has and bandwidth capacity of a port that said

35 virtualization device has, and

a fifth step for setting up the logical volume definition which was prepared in said second step, the cache allocation definition in case that the cache allocation definition is prepared in said third step, and the port bandwidth allocation definition in case that the port

41 bandwidth allocation definition is prepared in said fourth

42 step, in said virtualization device, as a configuration.